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SOLID WASTE MANAGEMENT UNIT ASSESSMENT REPORT FOR SOLID WASTE MANAGEMENT UNIT 9 JET ENGINE TEST CELL BUILDING A969 NAS KEY WEST FL

6/1/1995

ABB ENVIRONMENTAL SERVICES INC

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SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT REPORT
SWMU 9
JET ENGINE TEST CELL, BUILDING A969
KEY WEST, FLORIDA

UNIT IDENTIFICATION CODE: N60201
CONTRACT NO. N62467-89-D-0317/114

JUNE 1995

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

SOLID WASTE MANAGEMENT UNIT (SWMU) ASSESSMENT REPORT

SWMU 9

JET ENGINE TEST CELL, BUILDING A969
BOCA CHICA FIELD, NAVAL AIR STATION
KEY WEST, FLORIDA

Unit Identification Code: N60201

Contract No. N62467-89-D-0317/114

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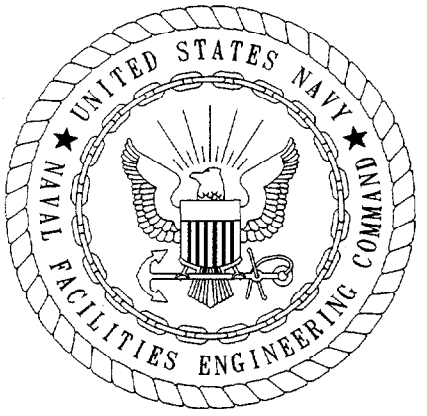
June 1995



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/114 are complete and accurate and comply with all requirements of this contract.

DATE: June 16, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: Philip N. Georgariou
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Robin S. Futch, P.G.
Project Technical Lead

(DFAR 252.227-7036)

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1.0 INTRODUCTION

Under Part II CORRECTIVE ACTION of the Resource Conservation and Recovery Act (RCRA) permit for Naval Air Station (NAS) Key West, the Department of the Navy (Navy) is required to report within 15 calendar days of discovery any additional Solid Waste Management Unit (SWMU) or Area of Concern (AOC) identified during the course of groundwater monitoring, field investigations, environmental audits or by other means (Part II.A.4.). The Part II permit conditions further require that a SWMU Assessment Report (SAR) be prepared for any newly discovered SWMU within 90 days of notification. In accordance with Part II.B.3. NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY IDENTIFIED SWMUs AND AOCs under SPECIFIC PERMIT CONDITIONS, the Department of the Navy is herein providing the SAR for a newly discovered SWMU located at Boca Chica Field. This SAR for SWMU 9, Jet Engine Test Cell, Building A969, includes the following information in compliance with Part II.B.3. of the permit:

a. location of the unit on a topographic or similar map of appropriate scale such as required under 40 CFR S270.14(b) (19);

b. designation of type and function of the unit;

c. general dimensions, capacities and structural description of the unit;

d. dates that the unit was operated;

e. specification of all wastes that have been managed at/in the unit to the extent available, including all available data on hazardous constituents in the wastes; and

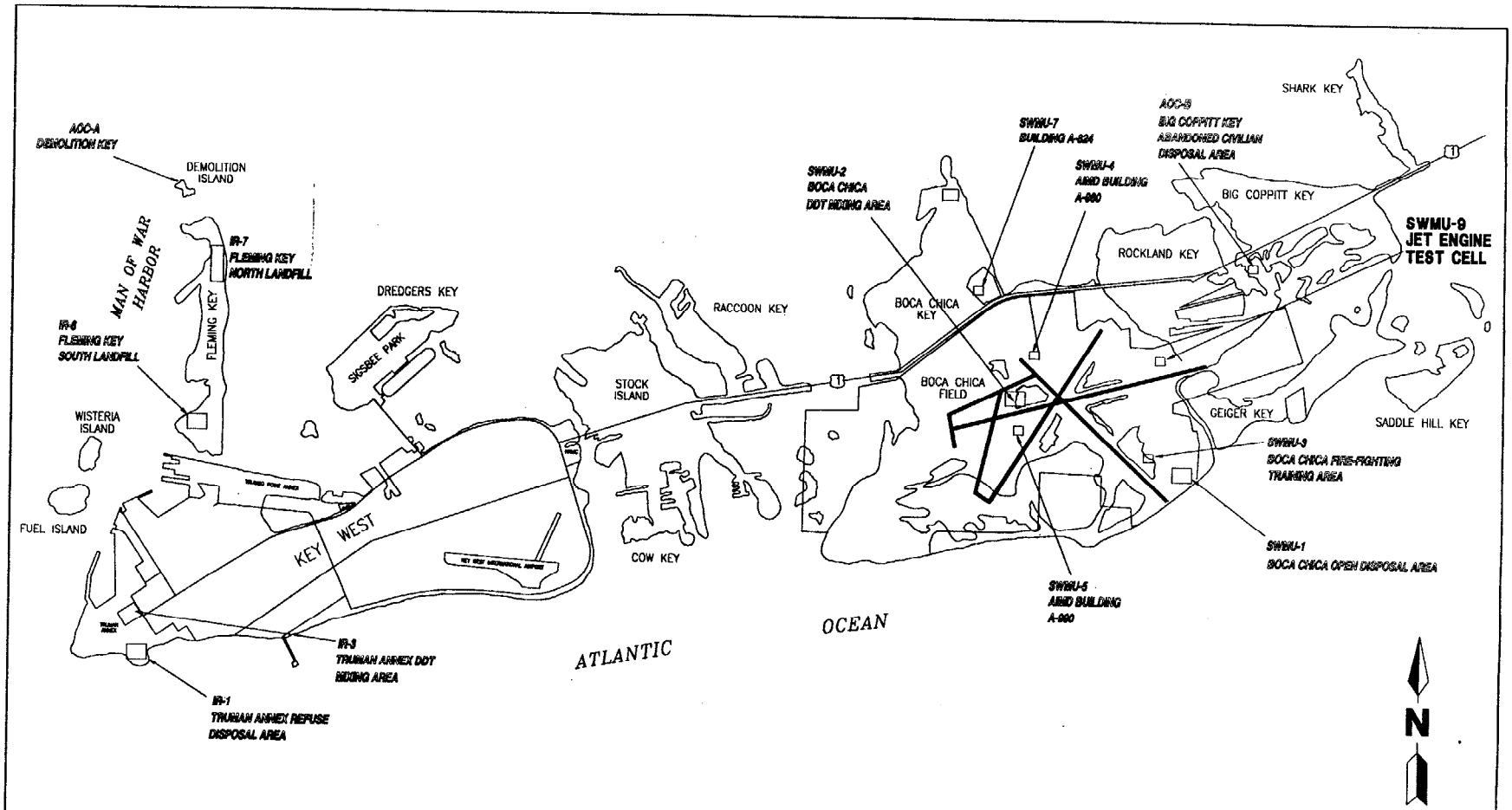
f. all available information pertaining to any release of hazardous waste or hazardous constituents from the unit.

This required information is provided in the following sections.

2.0 LOCATION OF UNIT

NAS Key West, Monroe County, Florida, is located approximately 150 miles southwest of Miami. NAS Key West is a complex of activities encompassing approximately 5,000 acres in numerous areas of the lower Florida Keys. The majority of activities are concentrated on Boca Chica Key and Key West. The host activity, Boca Chica Field, is situated on Boca Chica Key and covers approximately 3,250 acres. The ~~mission~~ of NAS Key West is to maintain and operate facilities and provide services and materials to support operations of aviation activities and units designated by the Chief of Naval Operations (CNO).

The Jet Engine Test Cell site (Building A969) is located in the northeast section of Boca Chica Field on Boca Chica Key (Figure 1). Latitude/longitude coordinates of SWMU No. 9 are 24°34'49" North, 81°40'40" West. The facility is used to test recently repaired jet engines. There are no other activities within close proximity to the site. The site is bordered on the south by an asphalt road that parallels a concrete runway, on the north by a saltwater inlet, and on the east and west by open, flat-lying grassy areas.



0 .75 1.5 MILES

SCALE: 1" = 1.5 MILES APPROXIMATE

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FIGURE 1
SWMU NO. 9 LOCATION

SWMU ASSESSMENT REPORT

NAS KEY WEST
KEY WEST, FLORIDA

3.0 DESIGNATION OF UNIT TYPE AND FUNCTION

The Jet Engine Test Cell site is a location established for the testing of jet engines after maintenance or repair has been performed. The site includes the current canopy-covered test cell, fuel storage tanks, Building A969, which serves as an office, and a maintenance shed that is used to contain materials and equipment used by maintenance personnel.

4.0 SWMU DESCRIPTION

Jet engine testing activities are performed under a canopied area located in the central part of the site (Figure 2). This area is surrounded by a circular concrete pad approximately 60 feet in diameter. The jet engines are fueled from a 5,000-gallon JP-5 jet fuel aboveground storage tank (AST) that has been in operation since 1987. The AST is located within a concrete containment berm approximately 70 feet southwest of the canopy. Aboveground fuel piping extends from the northeast end of the berm to the testing area. Jet engine exhaust is directed toward the inlet north of the canopy and is deflected upward by jet blast deflectors.

Three compressed air tanks are located on top of a 4-foot high concrete pad near the southwest corner of the canopy. A switch house, used for jet engine testing procedures, is located on the same concrete pad and is oriented perpendicular to the air tanks. A high voltage box rests on a concrete pad between the air tanks and the fuel lines.

Building A969 is located approximately 50 feet southeast of the concrete testing area and is used as an office by facility personnel. The two metal storage buildings located northeast of Building A969 are used to store jet engine testing equipment.

The concrete area that extends east of the canopy was the former jet engine testing area. A small metal shed is located at the eastern end of the concrete area and is used for the storage of various oils and jet fuel. Gas path cleaners are also stored in drums along the east side of the shed.

An electric line, a telephone line, and two water lines are located underground in the southern part of the site. The electric and telephone lines extend from the switch house to Building A969. The electric line then proceeds southwest underneath the asphalt road. The telephone line proceeds southeast, parallel to the asphalt road. One water line extends from Building A969 to a storm drain located south of the asphalt road. A second water line extends from the storage shed at the former testing area to the same storm drain.

5.0 PERIOD OF OPERATION

Jet engine testing activities have been conducted at this location since 1969 when the facility was constructed. There are no plans to discontinue use of the site.

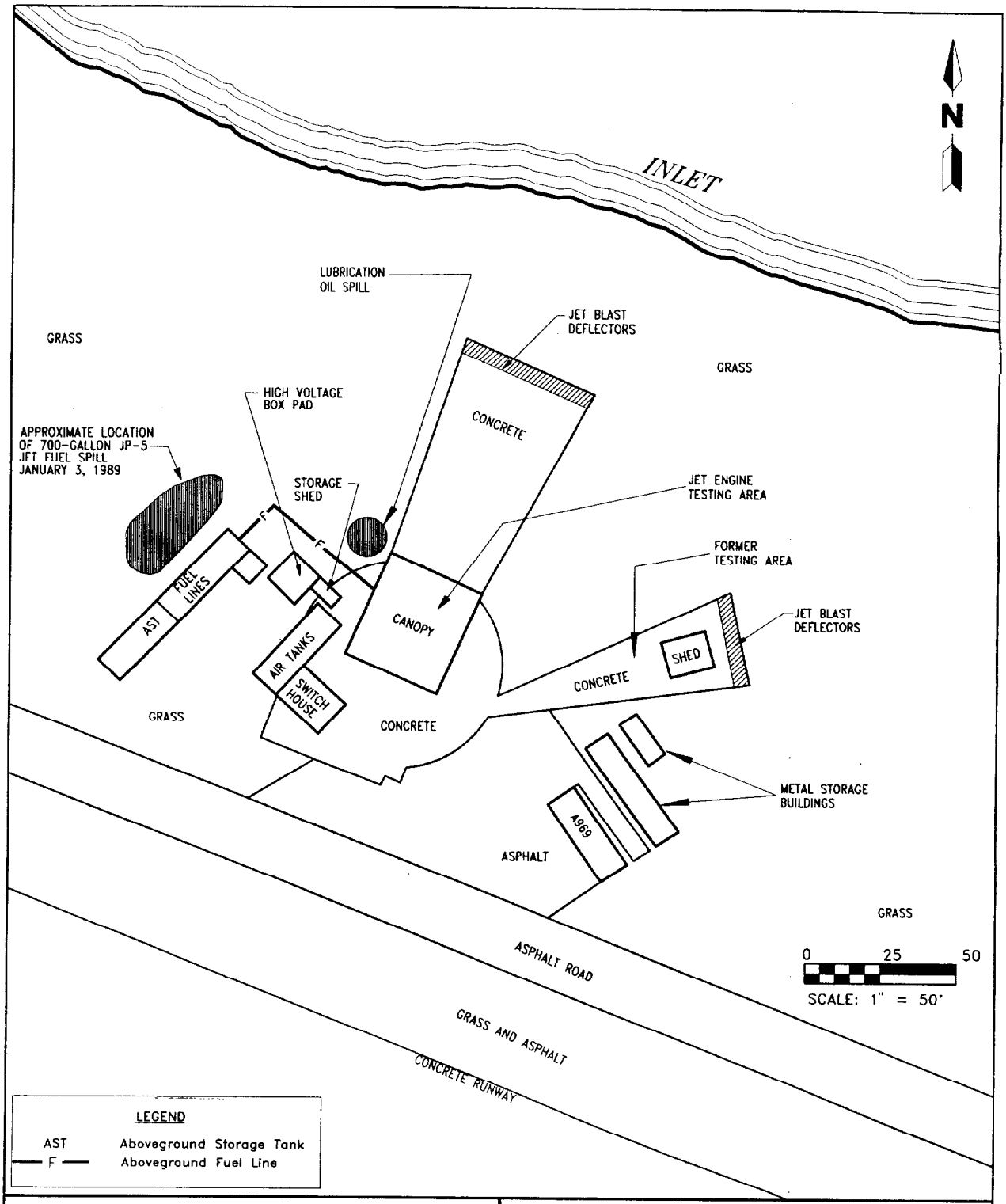

FIGURE 2
SWMU NO. 9, JET ENGINE TEST CELL

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SWMU ASSESSMENT REPORT

NAS KEY WEST
KEY WEST, FLORIDA

6.0 WASTE MANAGEMENT PRACTICES

Other than an interim action conducted to address spilled petroleum at the site, there are no documented practices that have been instituted to manage wastes at this unit as wastes are not normally generated in significant quantities.

7.0 DOCUMENTATION OF RELEASE OF HAZARDOUS SUBSTANCES

Investigation of this unit began in 1993, when ABB-ES was authorized to conduct a petroleum contamination assessment in response to a spill of JP-5 jet fuel. In January 1989, a filter system leak resulted in the release of approximately 700 gallons of JP-5 jet fuel on the west side of the AST (Figure 2). During initial remedial activities, approximately 650 gallons of JP-5 were recovered by pumping free product from standing puddles on the ground. The observed maximum depth of soil contamination was 2 inches. No discharge to wetlands or surface waters was observed. Approximately 10 cubic yards of contaminated soil were excavated and removed from the site. The soil underwent weathering treatment for decontamination in accordance with State of Florida guidelines for petroleum contaminated soils.

The ensuing petroleum contamination assessment focused on assessing and delineating the lateral and vertical extent of contamination in soil and groundwater related to the 1989 and subsequent, undocumented discharges of petroleum. The petroleum contamination assessment included advancement of 43 soil borings and installation and sampling of a network of 24 monitoring wells. The contamination assessment was documented in the June 1994 Contamination Assessment Report (CAR) prepared by ABB-ES.

Contamination by petroleum constituents in the upper 1 foot of soil was documented at numerous locations by field organic vapor analyzer (OVA) measurements, but due to the shallow water table, it is probable that these levels may be related to contaminated groundwater migration rather than discharge of fuels. No soil samples were collected for laboratory analysis during the petroleum contamination assessment.

Contamination by petroleum constituents in the groundwater was documented by detected concentrations in groundwater of benzene, ethylbenzene, xylenes, naphthalenes, and total recoverable petroleum hydrocarbons (TRPH) in samples submitted for laboratory analysis. The groundwater concentrations and locations of monitoring wells are presented in Tables 1 through 3, and Figure 3, respectively.

Release of hazardous substances was first documented in the petroleum CAR prepared for the Jet Engine Test Cell that was submitted to the Navy in June 1994. This report also documented the detection of chlorinated solvent-related volatile organic compounds in groundwater samples obtained from eight of the monitoring wells at the site. Groundwater samples collected in two episodes from monitoring wells in the eastern part of the site contained the compounds 1,2-dichloroethene (1,2-DCE), trichloroethene (TCE), 1,4-dichlorobenzene (1,4-DCB), 1,1,1-trichloroethane (1,1,1-TCA), 1,2-dichloroethane (1,2-DCA), and trichloro-fluoromethane (TCFM).

Table 1
Groundwater Analytical Data, October 18, 1993

Solid Waste Management Unit Assessment Report
SWMU 9, Jet Engine Test Cell, Building A969
Boca Chica Field, Naval Air Station
Key West, Florida

Compound	Applied Standard	MW 1	MW1 DUP	MW 2	MW 3	MW 4	MW4 DUP	MW 5	MW 6	MW 7	MW 8	MW 9
Benzene	[1]200	<1	<1	<1	<1	2	2	56	<1	<1	<1	<1
Ethylbenzene		<1	<1	33	4	54	54	70	<1	<1	<1	<1
Xylenes		<1	<1	<1	4	2	<1	3	<1	<1	<1	<1
Total VOAs	[1]200	ND	ND	33	8	56	56	129	ND	ND	ND	ND
Naphthalene		<5	<5	110	<5	79	91	100	<5	<5	<5	<5
1-Methylnaphthalene		<5	<5	59	19	55	56	110	<5	<5	<5	<5
2-Methylnaphthalene		<5	<5	57	<5	53	51	130	<5	<5	<5	<5
Total naphthalenes	[2]100	ND	ND	226	19	187	198	340	ND	ND	ND	ND
TRPH	[1]5	<1	<1	1	2	6	8	46	<1	<1	<1	<1
cis-1,2-DCE	[3]70	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-DCE	[3]100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-DCB	[3]75	2	2	<1	1	2	<1	2	<1	<1	<1	<1
Trichlorofluoromethane	[4]2,400	<1	<1	<1	3	<1	<1	3	<1	<1	<1	<1

See notes at end of table.

Table 1 (Continued)
Groundwater Analytical Data,
October 18, 1993

Solid Waste Management Unit Assessment Report
SWMU 9, Jet Engine Test Cell, Building A969
Boca Chica Field, Naval Air Station
Key West, Florida

Compound	Applied Standard	MW 10	MW 11	MW 12	MW 13	MW 14	MW 15	MW 16	MW 17	MW 18	MW 19D	MW 20D
Benzene	[1]200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Xylenes		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total VOAs	[1]200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene		9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1-Methylnaphthalene		10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Methylnaphthalene		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total naphthalenes	[2]100	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRPH	[1]5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-DCE	[3]70	<1	<1	<1	<1	11	9	<1	<1	<1	<1	<1
trans-1,2-DCE	[3]100	<1	<1	<1	<1	24	17	<1	<1	<1	<1	<1
1,4-DCB	[3]75	<1	1	<1	<1	<1	2	2	1	<1	<1	1
Trichlorofluoromethane	[4]2,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

[1] State target level for Class G-III groundwater (Chapter 17-770, Florida Administrative Code [FAC]).
[2] State target level for Class G-II groundwater (Chapter 17-770, FAC).
[3] Maximum contaminant level (Chapter 17-550, FAC).
[4] Groundwater guidance concentration (Florida Department of Environmental Regulation [FDER], February 1989).

Notes: Concentrations are in parts per billion except TRPH, which is reported in parts per million.

ND = not detected.
Total VOAs = total volatile organic aromatics (the sum of benzene, ethylbenzene, toluene, and xylenes).
MW = monitoring well.
Dup = duplicate.
Total naphthalenes is the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
TRPH = total recoverable petroleum hydrocarbons.
DCE = dichloroethene.
DCB = dichlorobenzene.

Table 2
Groundwater Analytical Data,
Monitoring Wells MW-14 and MW-15,
October 1993, December 1993, and January 1994

Solid Waste Management Unit Assessment Report
SWMU 9, Jet Engine Test Cell, Building A969
Boca Chica Field, Naval Air Station
Key West, Florida

Compound	Applied Standard	MW-14			MW-15		
		October 1993	December 1993	January 1994	October 1993	December 1993	January 1994
cis-1,2-DCE	[1]70	11	480	54	9	980	160
trans-1,2-DCE	[1]100	24	1,400	76	17	2,800	170
1,4-DCB	[1]75	<1	<1	<1	2	<1	<1
TCE	[1]3	<1	<1	<1	<1	41	2
1,1,1-TCA	[1]200	<1	<1	<1	<1	3.9	<1
1,2-DCA	[1]3	<1	<1	1	<1	<1	3
Benzene	[2]200	<1	1.6	NA	<1	9.3	NA

[1] Maximum contaminant level (Chapter 17-550, Florida Administrative Code [FAC]).
[2] State target level for G-III groundwater (Chapter 17-770, FAC).

Notes: Concentrations are in parts per billion (ppb).

DCE = dichloroethene.
DCB = dichlorobenzene.
TCE = trichloroethene.
TCA = trichloroethane.
DCA = dichloroethane.
NA = not analyzed.

Table 3
Groundwater Analytical Data, February 1994

Solid Waste Management Unit Assessment Report
SWMU 9, Jet Engine Test Cell, Building A969
Boca Chica Field, Naval Air Station
Key West, Florida

Compound	Applied Standard	Monitoring Well						
		MW-14	MW-14-Dup	MW-15	MW-21	MW-22	MW-23	MW-24
cis-1,2-DCE	[1]70	74	73	120	73	4.2	<1	770
trans-1,2-DCE	[1]100	180	190	280	6.6	4.6	<1	890
TCE	[1]3	<1	<1	1.8	<1	<1	<1	2.4
Benzene	[2]200	<1	<1	<1	<1	<1	<1	3.8

[1] Maximum contaminant level (Chapter 17-550, Florida Administrative Code [FAC].
[2] State target level for G-III groundwater (Chapter 17-770, FAC).

Notes: Compound concentrations are expressed in parts per billion (ppb).

MW = monitoring well.
Dup = duplicate.
DCE = dichloroethene.
TCE = trichloroethene.

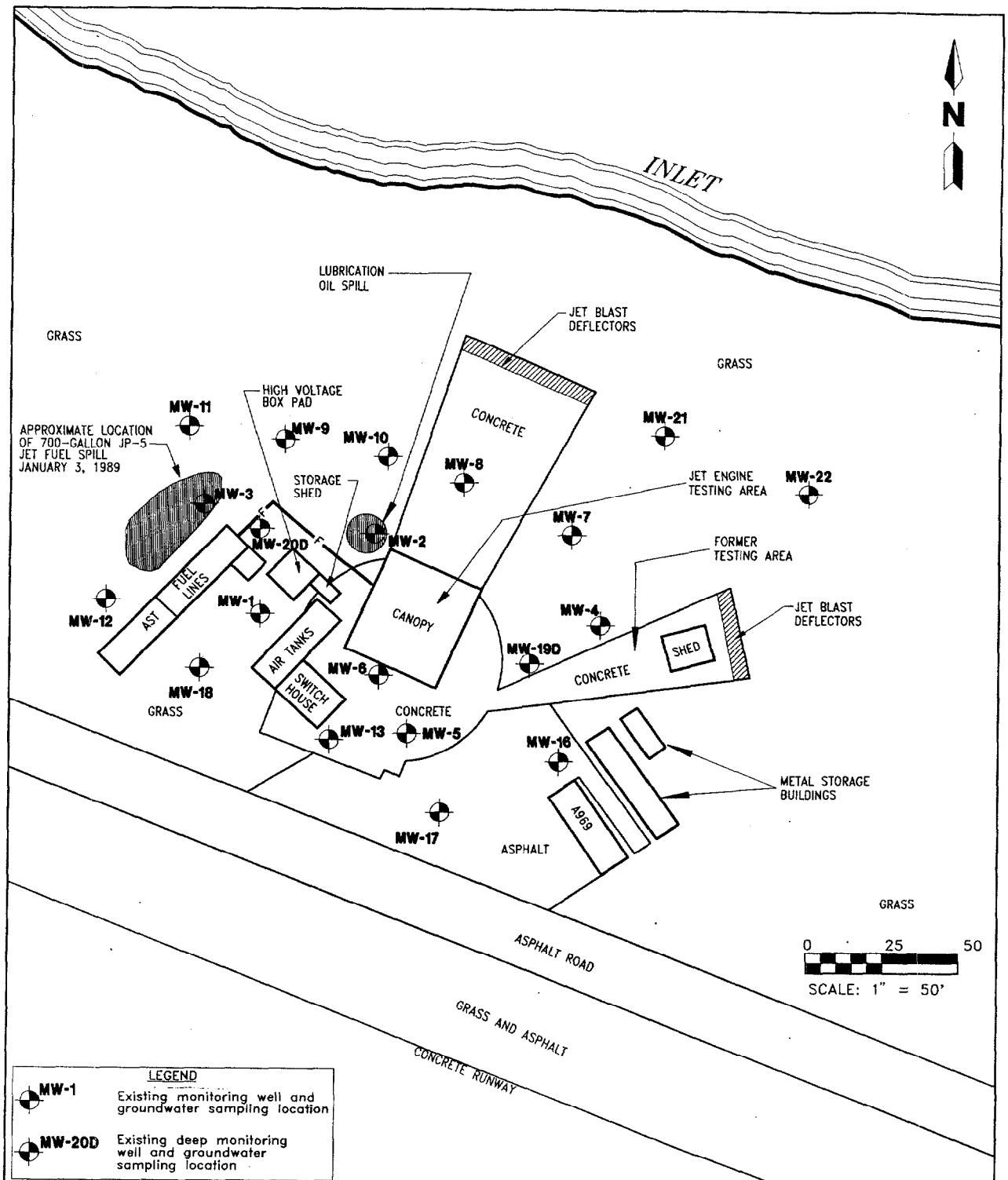

FIGURE 3
MONITORING WELL/GROUNDWATER SAMPLING LOCATIONS
SWMU NO. 9, JET ENGINE TEST CELL

H/KEYWEST/CELL/NP-SB-GLC/6-15-95

SWMU ASSESSMENT REPORT

NAS KEY WEST
KEY WEST, FLORIDA

During a November 1992 site visit, ABB-ES observed an overturned lubrication oil drum and stained soil in a small area near the northwest corner of the canopy (Figure 2). Although there was no indication that a discharge of lubricants and solvents currently in use resulted in the groundwater contamination, the possible source of chlorinated compounds in groundwater was investigated during the petroleum contamination assessment after their occurrence was detected. The area near monitoring wells MW-14 and MW-15 was formerly used as the jet engine testing area. The shed at the end of the former testing area is used to store recycled fuel oil, hydraulic oil, turbo oils, engine oil, and jet fuel. Gas path cleaners are also stored in drums along the northeast side of the shed.

According to site personnel, three gas path cleaners and degreasers are documented as being used at the site. These solvents are known as B&B TC-100 and B&B 3100 (manufactured by B&B Tritech, Inc., Hialeah, Florida), and Eldorado ED-563 (manufactured by Eldorado Chemical Company, Inc., San Antonio, Texas). B&B 3100 and Eldorado ED-563 were used from approximately 1980 until 1993. B&B TC-100 is currently used at the site.

According to material safety data sheets (MSDSs) for each of these solvents, chlorinated compounds are not listed as present in any of them. The MSDS for ED-563 lists napthenic mineral oil, paraffinic mineral oil, and monobutyl ether ethylene glycol as hazardous ingredients. Compositions of B&B TC-100 and B&B 3100 were withheld as a trade secret per 29CFR1910.1200(i). Verbal communication with B&B Tritech, Inc., indicates that chlorinated compounds are not components of either solvent.

Because B&B-3100, B&B TC-100, and Eldorado ED-563 reportedly contain no chlorinated compounds, the source of chlorinated compounds in groundwater does not appear to be the result of the release of these solvents. Other potential sources were not identified during the contamination assessment.